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L5: Entry 1 of 1 File: USPT Jan 20, 1998

US-PAT-NO: 5710920
DOCUMENT-IDENTIFIER: US 5710920 A

TITLE: Object extending method

DATE-ISSUED: January 20, 1998

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FOREIGN-APPL-PRIORITY-DATA:

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US-CL-CURRENT: 707/103; 707/102, 709/101, 717/3
FIELD-OF-SEARCH: 395/600, 395/700, 395/161, 395/614, 395/613, 395/671, 395/703, 364/200

REF-CITED:

U.S. PATENT DOCUMENTS

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	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	4914568	April 1990	Kudosky et al.	364/200
☐	5327559	July 1994	Priven et al.	395/700
☐	5475843	December 1995	Halviatti et al.	395/700
☐	5495567	February 1996	Iizawa et al.	395/161
☐	5561752	October 1996	Jevans	395/133
☐	5590330	December 1996	Talati	395/700

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ABSTRACT:

In an object extending method for use in an object-oriented data base system having an object having an attribute, a relation and a procedure and a definition object having definition information determining a structure of the object, information on changes in attribute, relation and procedure which accompany a change in the definition object is held as a parts object in the definition object, and data to be newly appended to the object as a result of the change in the definition object is held as a parts object in the object, so that work to change the object in accordance with a change in schema may be reduced.

20 Claims, 33 Drawing figures

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DRPR:
FIGS. 2A to 2C show type definition information, attribute definition information and procedure definition information in meta-definition information, respectively.

DRPR:
FIGS. 3A and 3B show relation definition information and relation pair definition information in the meta-definition information, respectively.

DRPR:
FIGS. 4A and 4B show parts attribute definition information and parts procedure definition information in the meta-definition information, respectively.

DRPR:
FIGS. 5A and 5B show relation management definition information and structure change definition information in the meta-definition information.

DEPR:
A definition for prescribing a characteristic (attribute, relation and procedure) of an object is called a "type" of the object. A set of types is called a "schema". Information defined by a type is called "meta-definition" information. The schema and the meta-definition information also contain a type of a parts object and meta-definition information of the parts object type.

DEPR:
FIG. 2A to FIG. 5B show details of meta-definition information. Various kinds of meta-definition information to be described below are models of information to be described later with reference to FIG. 6A to FIG. 8D and they are saved in the dictionary 108 and managed by the dictionary manager 104. Here, [ ] indicates a type of the definition, showing that arrayOf[ ] is a definition described in terms of a padding array, enumOf[ ] is a definition described in terms of an enumerative type and unionOf[ ] is a definition described in terms of a union type. Further, "oid" and "binary Code" in [ ] indicate an object identifier and a variable length binary code, respectively. Here, integer (int) and character string (string) are presented as system offering types usable in type definition. Each type information piece can be handled as an object and hence holds an object identifier.

DEPR:
Meta-definition information of a type is shown at 201 to 206 in FIG. 2A wherein 201 designates a version number for managing the version of the present type definition, 202 designates a type name for definitely determining the type, 203 designates the number of attributes owned by the type, 204 designates a set of attributes owned by the type which has 202 attributes, 205 designates the number of procedures owned by the type and 206 designates a set or sets of procedures owned by the type and the number of the sets is stored in the above 205. More specifically, the attribute has an attribute object based on attribute meta-definition information indicated at 207 to 209 and the procedure has a procedure object based on procedure meta-definition information indicated at 210 to 214.

DEPR: